

APHA

*2015 American Public
Health Association Annual
Meeting & Exposition*

Geographic Information Systems in Public Health Data Visualization, Analysis & Sharing

*Presenter: Jared Shultz, M.A.
Esri Health and Human Services Technology
Specialist*



Presenter Disclosures

Jared Shoultz

- (1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:**

No relationships to disclose

HHS Organizational Objectives

- ↑ Health Outcomes
- ↓ Health Disparities
- ↑ Regulatory Compliance
- ↑ Accountability & Transparency
- ↑ Access to Care
- ↑ Efficient Use of Resources
- ↑ Customer Satisfaction

Key Business Units ▶ Supporting Objectives

Health
Equity



Healthcare
Quality



Children &
Family
Services



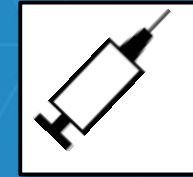
Medicaid

CMS

Chronic
Disease &
Health
Promotion



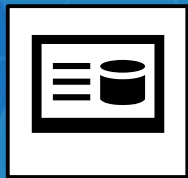
Infectious
Disease



Environmental
Health



IT/IS



Behavioral &
Mental
Health



Vital
Records



Preparedness
& Planning



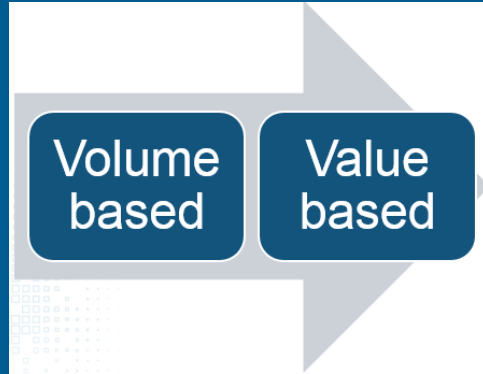
Aging & Adult
Services



Community
Services &
Development



Health and Human Services Trends & Pressures



Policy and Healthcare Reform



Technology and Data Advances



Alternate Care and Service Delivery Models

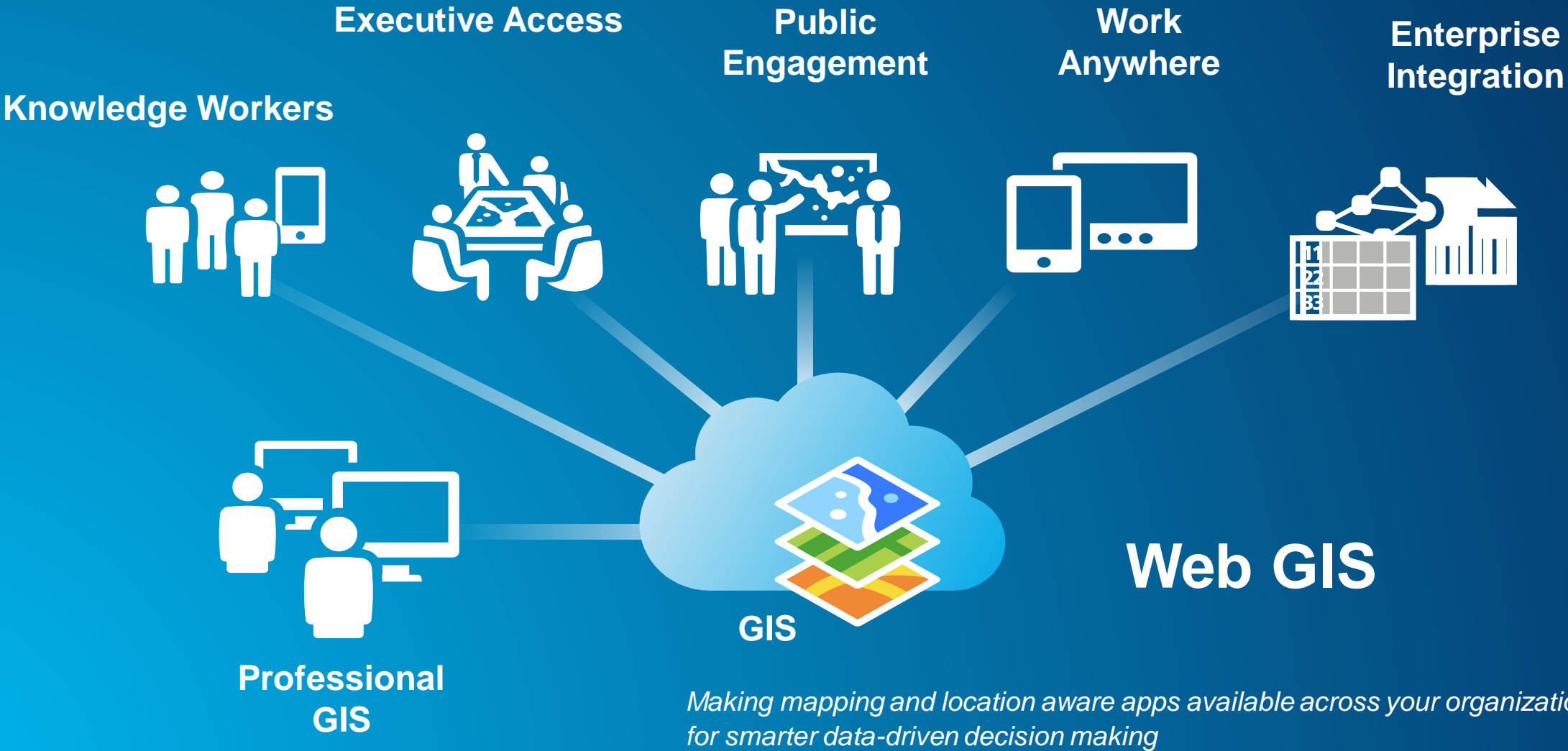
Budget Uncertainty

Unfunded Mandates



Consumerization of I.T.

Location Platform for Health and Human Services



An Integrated WebGIS

Desktop



Web



Device



Apps

Portal



Access / Identity



Server

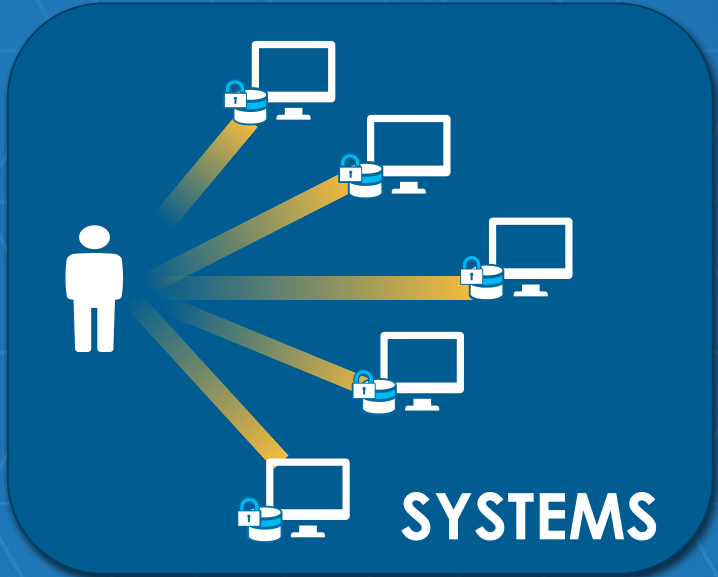
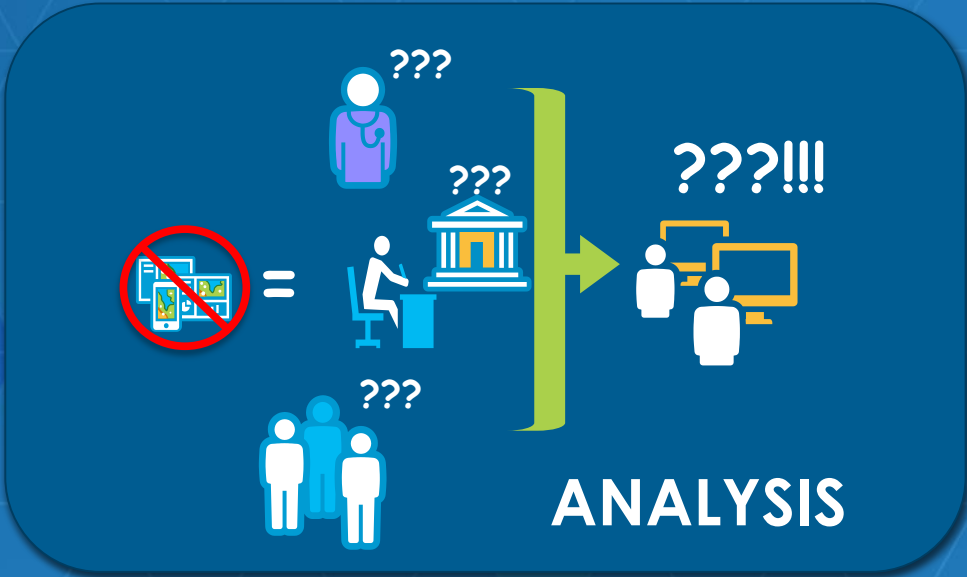
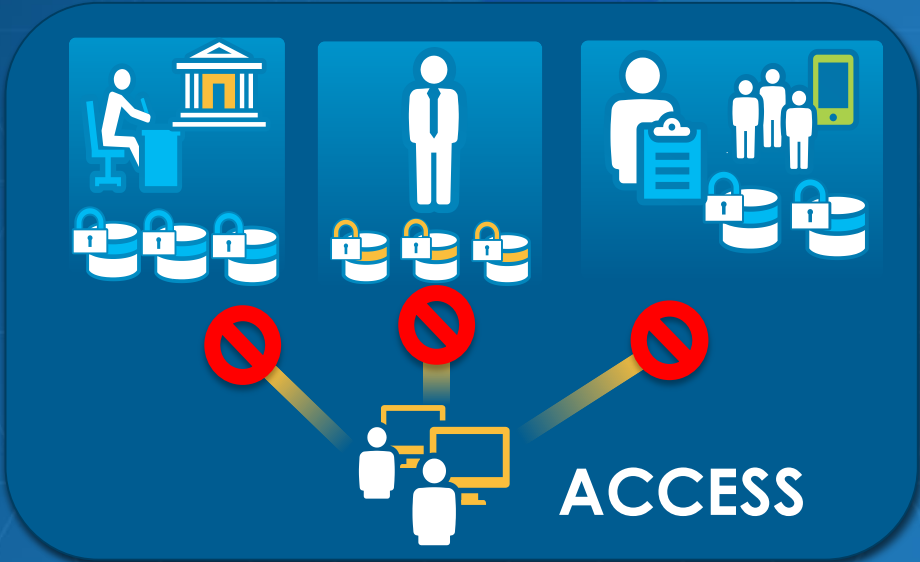


Online Content
and Services

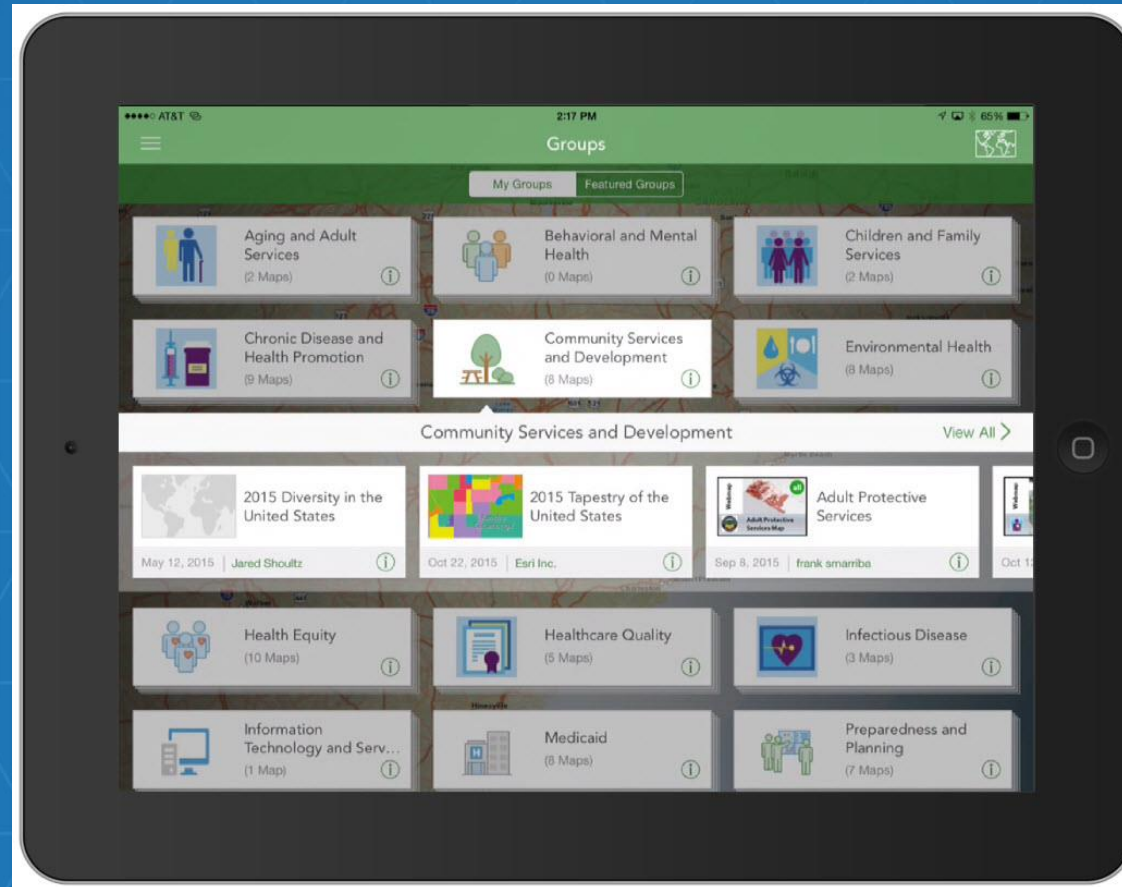
Services



Location Information Challenges



Access Challenge

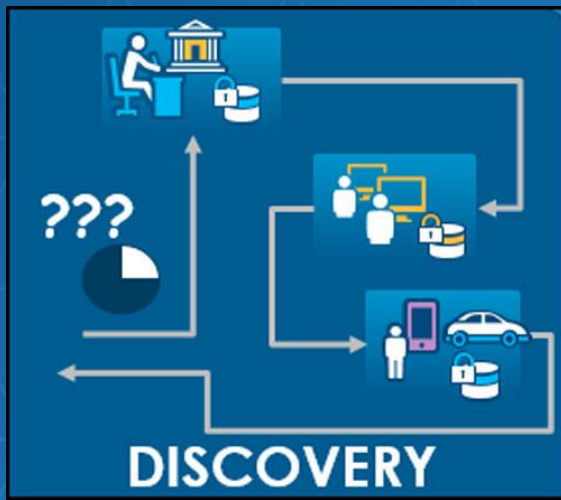


Mobile Access



Field Data Collection

Discovery Challenge



Home Gallery Map Scene Groups My Content My Organization

Application

Community Obesity

Dashboard

Citizen Problem Reporter Operation View

Application

Flu Tracker

Application

Model Health Organization Homeless Count

Esri Model Health Organization

Health and Human Services county and state agencies are tasked with promoting, developing and maintaining Healthy Communities. This requires a high-level of coordination and collaboration between a very diverse group of stakeholders and organizational access to the data and analytical resources needed to ensure every decision is driven by the best available information. The stakeholders required to properly address complex healthy communities issues are both internal and external so it is key that all internal departments have the ability to easily discover and share data, analysis and results with selected audiences. This Model Health Organization serves as an example of how the Esri ArcGIS Platform can be extended in these organizations by using Esri's WebGIS technology as a cloud-based collaborative content management system and public information portal. Many layers, maps and applications are based on modified South Carolina data and should only be used for demonstration purposes.

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Portal

Model Health Organization Featured Content

Show: All Maps Layers Scenes Apps Tools Files

Search the website or visit the ArcGIS Marketplace

Maps and Apps

Home Gallery Map Scene Groups My Content My Organization

Central GIS Services

EDIT INVITE USERS MEMBERSHIP REQUESTS CHANGE OWNER DELETE GROUP SHARE

Central resource group containing all the primary GIS layers, maps and services available to all the Esri Model Health Organization staff.

Group Content

Title	Owner	Rating	Views	Date
2003-2012 Zipcode Births - Esri Demo Data	Birth by Zip Code for 2003 to 2012 - Esri Demo Data			
Citizen Problem Reports	Non-emergency problems (road, blight, trash, utility, and other community concerns) reported by citizens through the Citizen Problem Reporter "Crowdsourcer Manager" App.		2,043 views	September 3, 2015
Homeless Count	Service used for all Homeless Count Data Collection		52 views	October 23, 2015
Licensed Health Facilities	South Carolina Licensed Health Facilities - Esri Demo Data			October 23, 2015

Authoritative Location Data

Sharing & Collaboration Challenge



Home Gallery Map Scene **Groups** My Content My Organization

My Groups

CREATE A GROUP

Show

All My Groups
Owned by Me
Owned by Others
With New Membership Requests

You are a member of 44 groups

- Aging and Adult Services**
 Central clearinghouse for resources relevant to the Aging and Adult Services business unit and the population they serve
 owned by modelhealthorg on March 24, 2014
[Details](#)
- Base Maps**
 High-quality base maps to use as background layers.
 owned by modelhealthorg on March 19, 2014
[Details](#)
- Behavioral and Mental Health**
 Central clearinghouse for resources relevant to the Behavioral and Mental Health business unit and the population they serve
 owned by modelhealthorg on July 14, 2015
[Details](#)
- Central GIS Services**
 Central resource group containing all the primary GIS layers, maps and services available to all the Esri Model Health Organization staff.
 owned by modelhealthorg on March 27, 2014
[Details](#)
- Children and Family Services**
 Central clearinghouse for resources relevant to the Children and Family Services business unit and the population they serve
 owned by modelhealthorg on July 14, 2015
[Details](#)
- Chronic Disease and Health Promotion**
 Central clearinghouse for resources relevant to the Chronic Disease and Health Promotion business unit and the population they serve
 owned by modelhealthorg on May 1, 2014
[Details](#)

Group-based Sharing

Esi ArcGIS Open Data for Health Demonstration

Search for open data SEARCH WITHIN MAP My Account

MAP | SATELLITE

Model Health Organization ArcGIS Open Data Site

This is an Esri ArcGIS Open Data demonstration. It provides an example of how a typical health organization can leverage the ArcGIS platform to address federal open data and mandated reporting requirements while helping to better inform the public on critical health issues. ArcGIS Open Data coupled with ArcGIS Online provides users around the ability to share their authoritative data through engaging applications and in multiple open formats so that it can be discovered by their stakeholder community. Forward thinking health organizations are using open data to foster transparency and promote innovative solutions to complex health issues through mash-ups and distributed analysis.

- Low Birth Weight**
 Information related to low birth weight more >
- Health Statistics**
 Vital records and other demographic information more >
- Licensed Facilities**
 Licensed and permitted facilities more >

Open Data

My Health Services

Resnoire County Flunkit Clinic

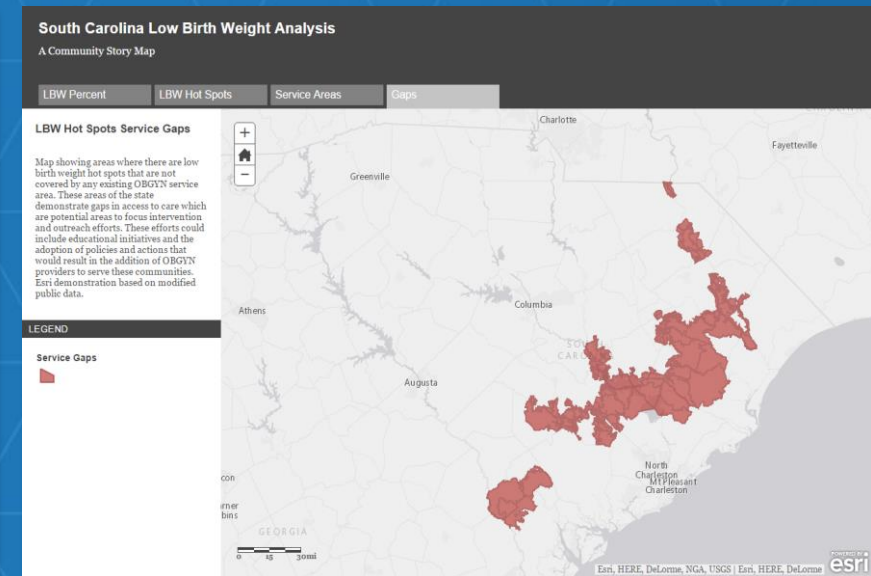
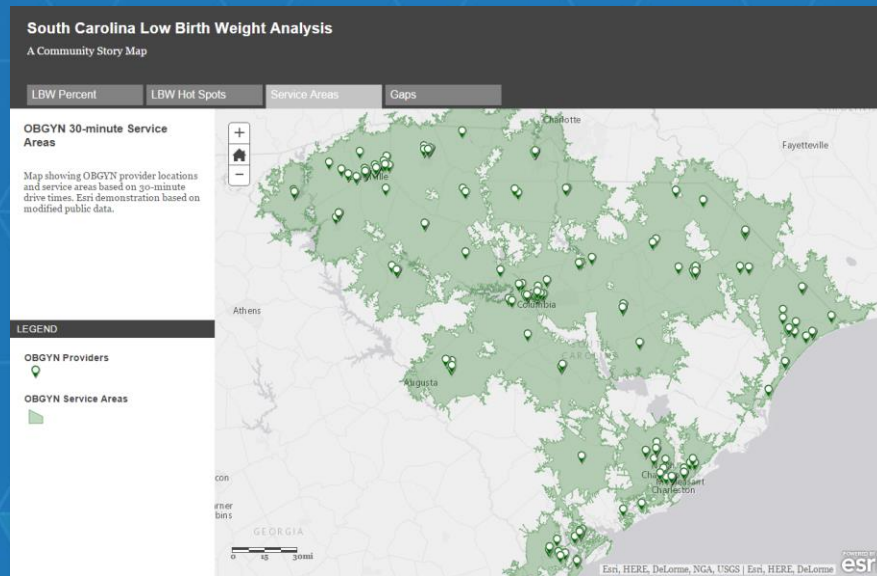
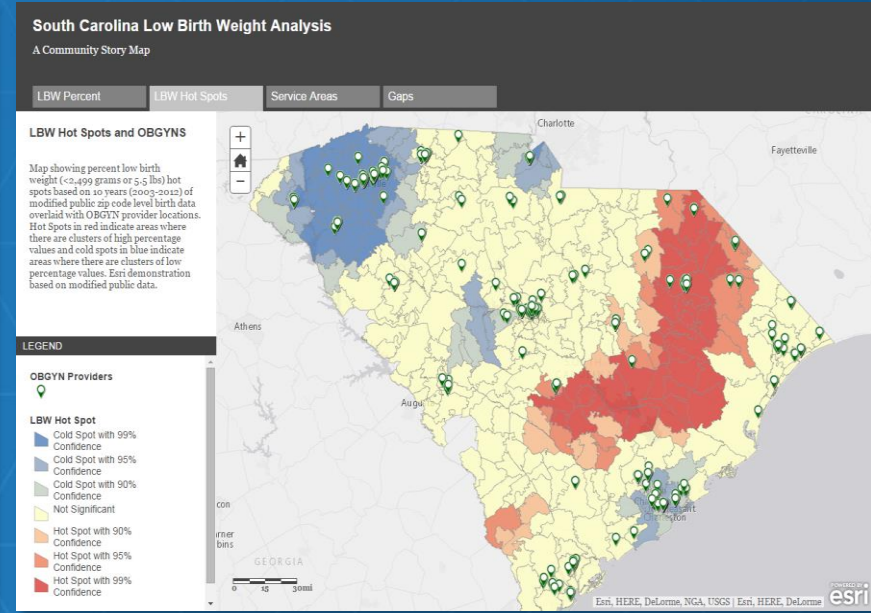
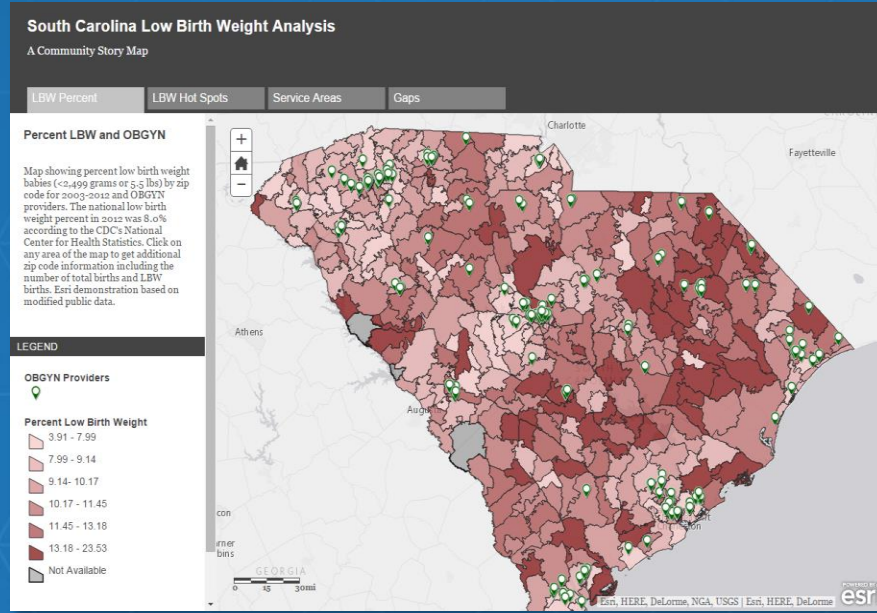
Name: Resnoire County Flunkit Clinic
 Address: 14 N Elmwood St, Lenoir, North Carolina
 Phone: 555-511-1212
 Email: info@resnoire.org
 Days Open: Mon-Fri
 Hours of Operation: 9:00am - 5:00pm

Health Clinic	Emergency Food Center	Womens Infant and Children Services (WICS)	Family Services	Public Health CL
Resnoire County Flunkit Clinic 1.0 mi (left) on Forest Dr toward Resnoire 1.0 mi (left) on Forest Dr toward Resnoire (0.2 mi) 2.0 mi (left) on S Highway 60 (0.22 mi) 3.0 mi (left) on S Highway 60 (0.24 mi) 4.0 mi (right) on S Hwy Ave (0.3 mi) 5.0 mi (right) on S Highway 60 (0.4 mi)	County Assistance and Shelter (0.08 mi) 223 S Broadway St 252-444-1212	South WIC Clinic (0.06 mi) 216 W Jackson Ave 252-523-1212	Resnoire Family Services (0.01 mi) 608 W Jackson Ave 888-555-1212	Resnoire Health CL 115 Washington St 252-712-2862

Flunkit Clinic | Emergency Food Center | Womens Infant and Children S... | Family Services | Public Health Clinic | Community Resources | Nonresidents | Birth and Death Certificate... | Caregiver Centers

Simple Applications (Resource Locators)

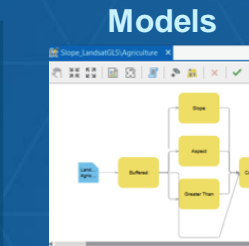
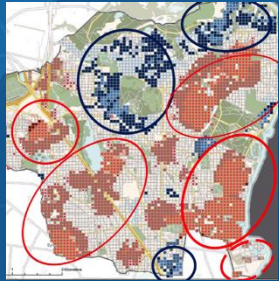
Analysis Challenge



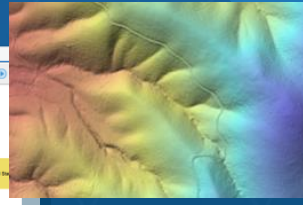
Spatial Analysis ▶ Providing Insight & Understanding

Desktop

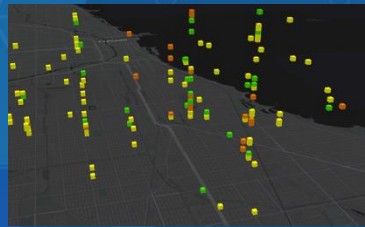
Statistical Clustering



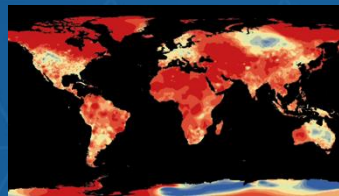
Raster Functions



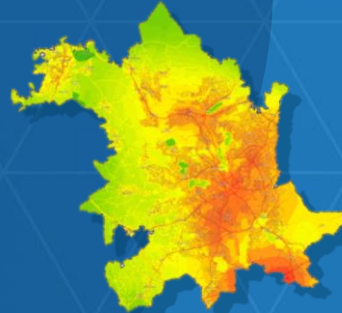
Anomaly Detection



Scientific Data Support



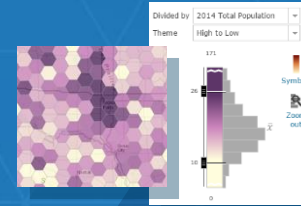
Bayesian Regression (EBK)



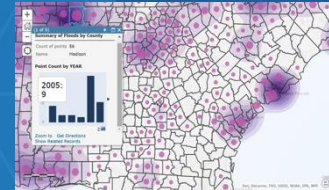
Integrate Analysis Tools



Data Exploration



Aggregation



Mode-Specific Routing

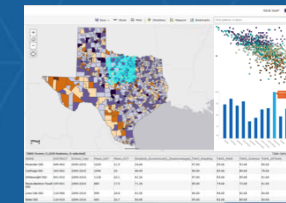


Portals

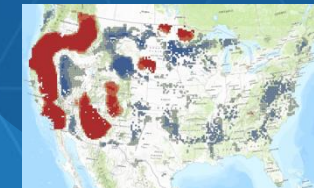
Location Allocation



Charting



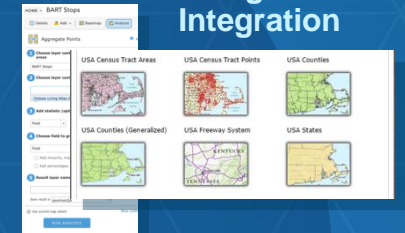
Hot Spots



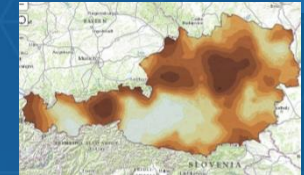
Buffer



Living Atlas Integration



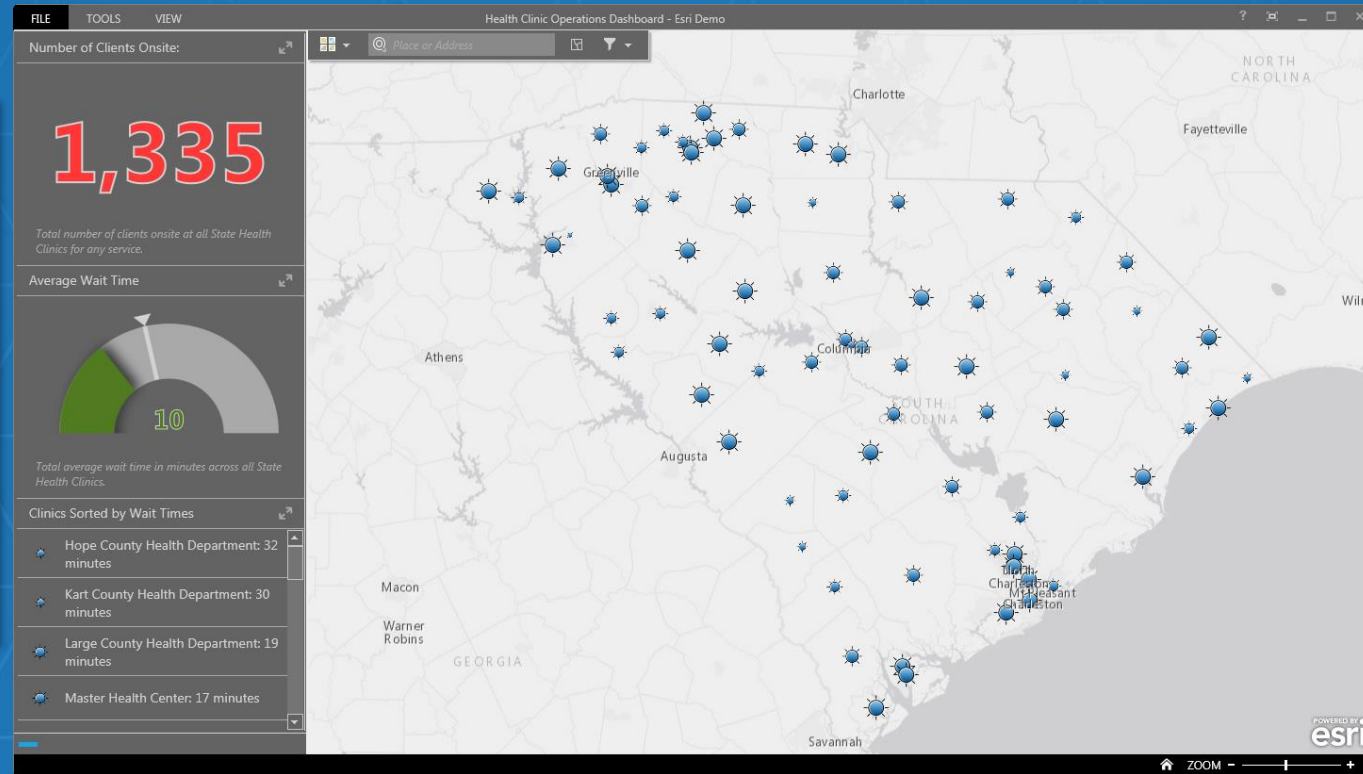
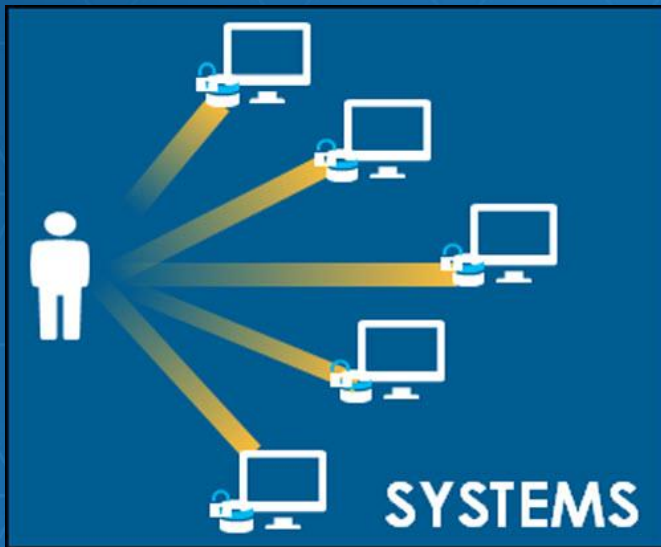
Interpolation



Geocoding



Systems Challenge



Dashboard Integration

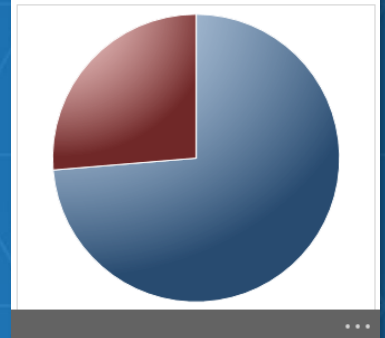
- ### State Health Clinics
- All Features
 - Unacceptable Wait Times

Status Filters

State Health Clinic Status:

Name	Park Clinic
Scheduled	57
Open	48
Complete	9
Onsite	18
Avg Wait (min)	11

Scheduled Appointments
Number and Percent of appointments by service type.

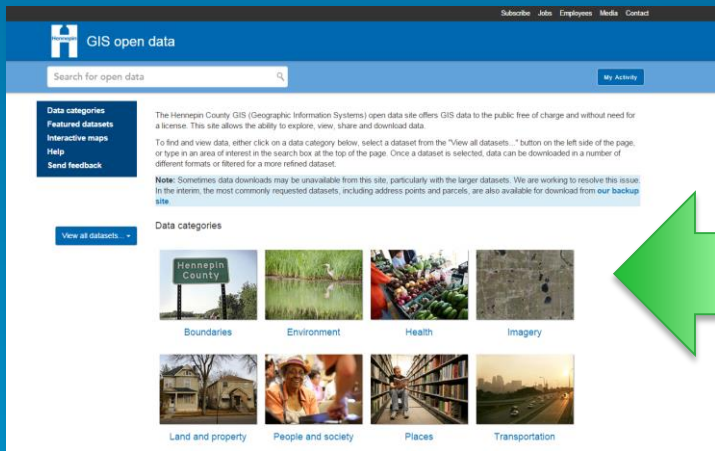


Additional Detail

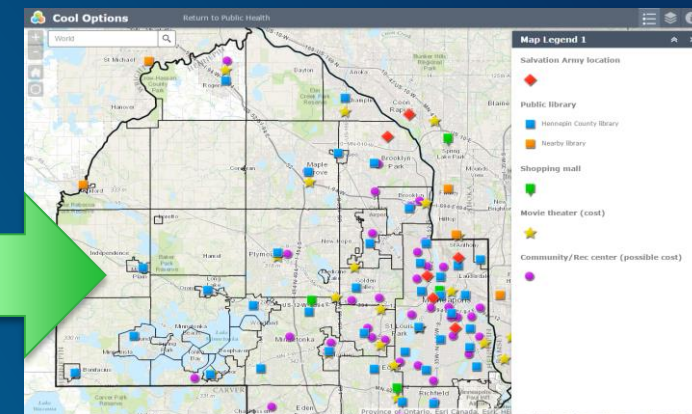
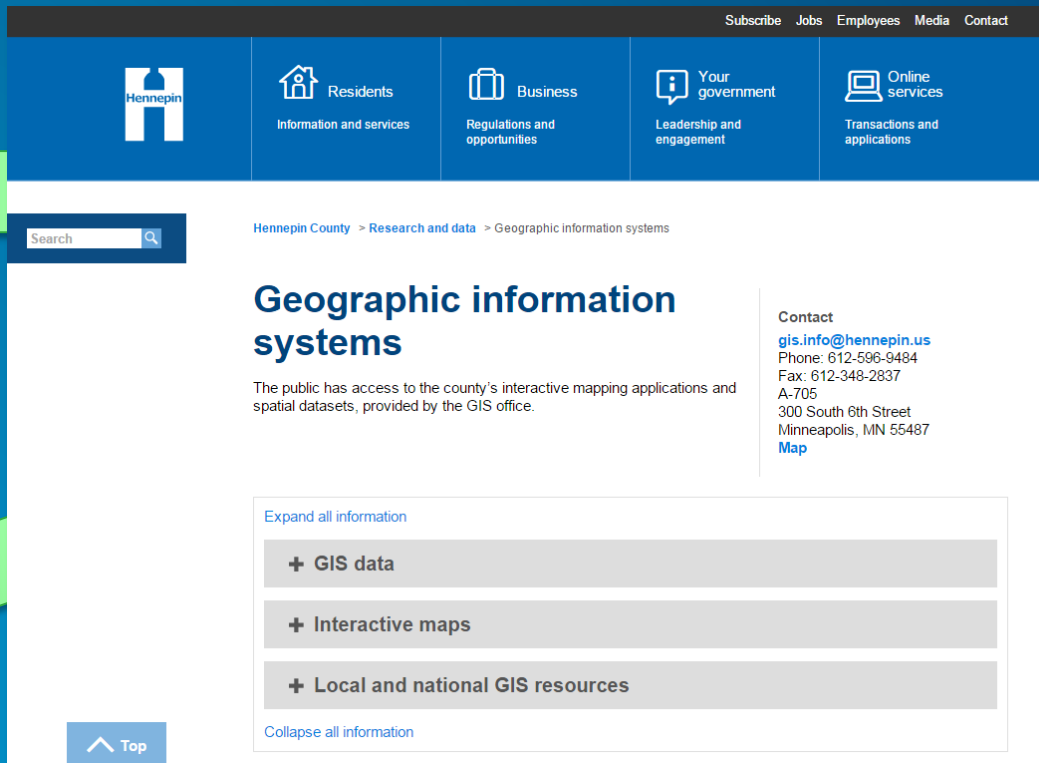
- Highlight
- Pan to
- Select
- Zoom to
- Directions to here

Spatial Tools

Hennepin County



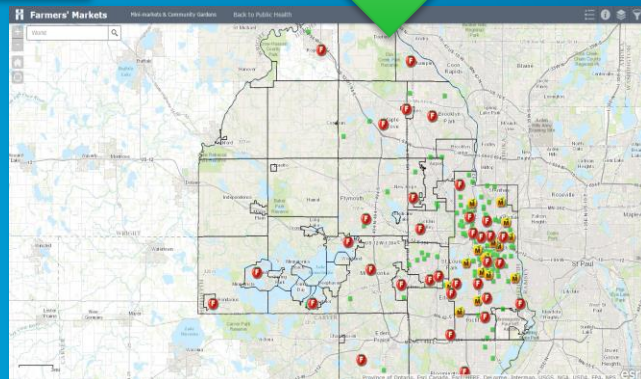
Open Data Portal



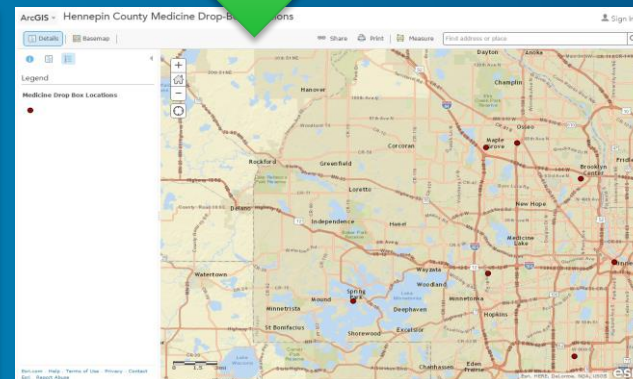
Configurable App (Cooling Centers)



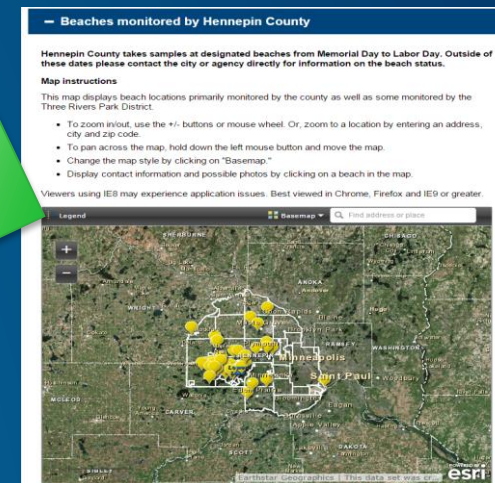
Web Apps (Birth Reporting)



Web Apps (Birth Reporting)

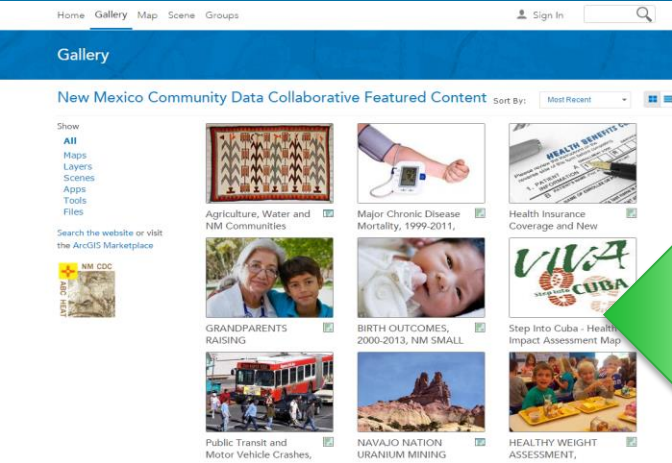


Web Maps (Medicine Drop-Boxes)

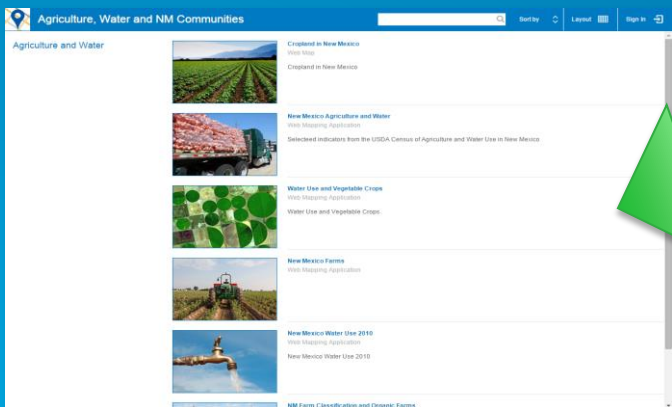


Embedded Maps (Swim Advisories)

New Mexico



Featured content



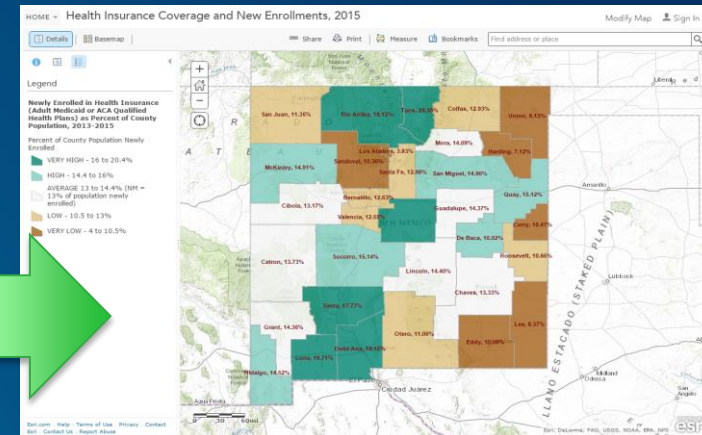
Galleries (Environmental)



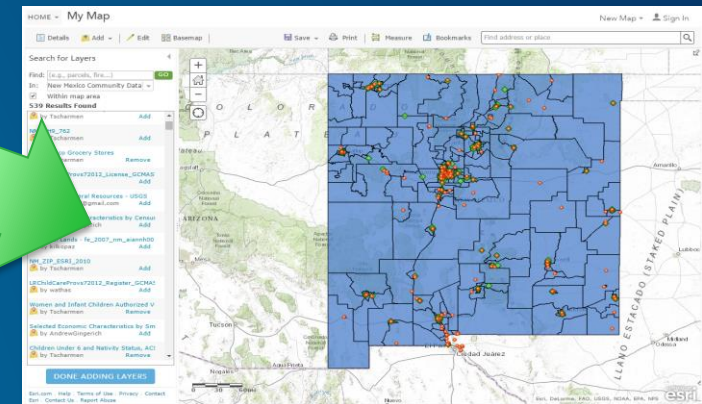
Stakeholder training workshop



Web Apps (Hazard Assessment)



Web Maps (Insurance Coverage)



Self-service mapping

A Complete Location Platform

Providing Mapping, Analysis, Data Management and Collaboration

Location Enablement

Empower all users to discover, use, make and share maps

Asset Management

Collect, organize, and exchange data

Planning & Analysis

Transform data into actionable information

Field Mobility

Get information into and out of the field

Operational Awareness

Disseminate information where and when it is needed

Constituent Engagement

Get feedback and make informed decisions

Your Integrated Web GIS Platform

one
corporate
system

no user
limitations

3-clicks
or less

uniformity
in all
their maps

as easy
to use as
their iPhone

A Location Platform for your organization means...





Any Questions

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